a. During the tortoise active season (February 16 through November 14), all trenches and other excavations with side slopes steeper than 1-foot rise to 3-foot length shall be immediately backfilled prior to being left unattended, or: (1) Fenced with tortoise-proof fencing; (2) covered with tortoise-proof fencing; (3) covered with plywood or similar material; or (4) constructed with escape ramps at each end of the trench and every 1,000 feet, at a minimum. All coverings and fences shall have zero ground clearance. If alternative 4 is selected, the trench or other excavation will be inspected periodically and following periods of substantial rainfall to ensure structural integrity and that escape ramps are functional.

b. An open trench or other excavation as described in 2.a. shall be inspected for entrapped animals immediately prior to backfilling.

c. If at any time a tortoise is discovered within a trench, all activity associated with that trench shall cease until a qualified biologist has removed the tortoise in accordance with Service-approved guidelines (Desert Tortoise Council 1994, revised 1999).

3. To implement Reasonable and Prudent Measure Number 3, DOE shall fully implement the following measure:

DOE will implement a litter-control program that will include the use of covered, raven-proof trash receptacles; disposal of edible trash in trash receptacles following the end of each work day; and disposal of trash in a designated sanitary landfill at the end of each week or when nearly full. Material placed in a sanitary landfill will be covered often enough to prevent ravens and other predators from feeding in the area.

4. To implement Reasonable and Prudent Measure Number 4, DOE shall fully implement the following measure:

Project areas no longer required by the project will be revegetated in accordance with the *Reclamation Implementation Plan* (Reclamation Plan) (DOE 2001c), RSMP (DOE 1998) developed for the Yucca Mountain Site Characterization Project, and recommendations made by Rakestraw et al. (1995). Site-specific plans will be developed for each site to be rehabilitated and shall conform with the Reclamation Plan and RSMP. Only native perennial vegetation and annual plants, including forage species of desert tortoises will be used on the project site. DOE shall conduct a field survey at each site and develop site-specific reclamation

plans for surface-disturbing projects within desert tortoise habitat. These plans may include specifications for contouring, relieving soil compaction, treating and/or spreading topsoil, and planting. In addition, these plans will describe in specific detail how disturbed sites will be rehabilitated using reasonable state-of-the-art techniques.

5. To implement Reasonable and Prudent Measure Number 5, DOE shall fully implement the following measures:

   a. Prior to handling any desert tortoise, carcass, or egg, appropriate State permits will be acquired from the Nevada Division of Wildlife.

   b. DOE will designate a field contact representative for each project, which may also serve as the environmental monitor, if appropriate. The field representative will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordinating compliance with the terms and conditions of this biological opinion. The field representative will have the authority to halt activities of construction equipment which may be in violation of the stipulations.

   c. DOE will keep an up-to-date log of all actions taken under this consultation, including acreage affected, habitat rehabilitation actions completed, number of desert tortoises taken and by what means (e.g., injured, killed, captured and displaced, or found in trenches or pits). DOE will provide the above information to the Service's Las Vegas Office on February 28 of every year during which activities occur under this biological opinion. The first annual report will be due February 28, 2002. Information provided in the report shall state cumulative totals, as well as totals for the report year.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the anticipated incidental take that may result from the proposed action. With implementation of these measures, the Service believes that no more than fifteen (15) desert tortoises may be incidentally killed or injured, and up to sixty (60) desert tortoises captured and displaced during the proposed project. An additional 1,643 acres of desert tortoise habitat may be disturbed as a result of project activities.

If, during the course of the action, the level of incidental take or loss of habitat identified is exceeded, reinitiation of consultation will be required. DOE must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

Upon locating a dead or injured endangered or threatened species, initial notification must be made to the Service's Division of Law Enforcement in Las Vegas, Nevada, at (702) 388-6380. Care should be taken in handling sick or injured desert tortoises to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured desert tortoises or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by the Service's Division of Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. All deaths, injuries, and illnesses of desert tortoises, whether associated with project activities or not, will be summarized in the annual report.

The following actions should be taken for injured or dead tortoises if directed by the Service's Division of Law Enforcement:

> Injured desert tortoises shall be delivered to any qualified veterinarian for appropriate treatment or disposal. Dead desert tortoises suitable for preparation as museum specimens shall be frozen immediately and provided to an institution holding appropriate Federal and State permits per their instructions. Should no institutions want the desert tortoise specimens, or if it is determined that they are too damaged (crushed, spoiled, etc.) for preparation as a museum specimen, then they may be buried away from the project area or cremated, upon authorization by the Service's Division of Law Enforcement. DOE, or the project proponent, shall bear the cost of any required treatment of injured desert tortoises, euthanasia of sick desert tortoises, or cremation of dead desert tortoises. Should sick or injured desert tortoises be treated by a veterinarian and survive, they may be transferred as directed by the Service.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

> *The Service recommends that DOE continue to consider important desert tortoise habitat at Yucca Mountain during the development and transportation phases of the project.*

In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

Reinitiation Notice

This concludes formal consultation on the actions outlined in your April 24, 2000, request. As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion (e.g., a substantial number of tortoises are killed or injured on established access roads, particularly along a specific road section); (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If we can be of any further assistance, please contact Michael Burroughs, in the Southern Nevada Field Office, at (702) 647-5230.

Sincerely,

Robert D. Williams
/s/ Field Supervisor

cc:
Administrator, Nevada Division of Wildlife, Reno, Nevada
Manager, Nevada Division of Wildlife, Las Vegas, Nevada
Deputy Director, Environmental Management, Department of the Air Force, Nellis AFB, Nevada
Deputy State Director, Resources, Land Use and Planning, Bureau of Land Management, Reno, Nevada
Project Leader, Desert National Wildlife Refuge Complex, Fish and Wildlife Service, Las Vegas, Nevada
Assistant Regional Director, Ecological Services, Fish and Wildlife Service, Portland, Oregon
Senior Resident Agent, Division of Law Enforcement, Fish and Wildlife Service, Boise, Idaho

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CONVERSIONS

METRIC TO ENGLISH			ENGLISH TO METRIC		
Multiply	**by**	**To get**	**Multiply**	**by**	**To get**
Area					
Square meters	10.764	Square feet	Square feet	0.092903	Square meters
Square kilometers	247.1	Acres	Acres	0.0040469	Square kilometers
Square kilometers	0.3861	Square miles	Square miles	2.59	Square kilometers
Concentration					
Kilograms/sq. meter	0.16667	Tons/acre	Tons/acre	0.5999	Kilograms/sq. meter
Milligrams/liter	1[a]	Parts/million	Parts/million	1[a]	Milligrams/liter
Micrograms/liter	1[a]	Parts/billion	Parts/billion	1[a]	Micrograms/liter
Micrograms/cu. meter	1[a]	Parts/trillion	Parts/trillion	1[a]	Micrograms/cu. meter
Density					
Grams/cu. cm	62.428	Pounds/cu. ft.	Pounds/cu. ft.	0.016018	Grams/cu. cm
Grams/cu. meter	0.0000624	Pounds/cu. ft.	Pounds/cu. ft.	16,025.6	Grams/cu. meter
Length					
Centimeters	0.3937	Inches	Inches	2.54	Centimeters
Meters	3.2808	Feet	Feet	0.3048	Meters
Kilometers	0.62137	Miles	Miles	1.6093	Kilometers
Temperature					
Absolute					
Degrees C + 17.78	1.8	Degrees F	Degrees F – 32	0.55556	Degrees C
Relative					
Degrees C	1.8	Degrees F	Degrees F	0.55556	Degrees C
Velocity/Rate					
Cu. meters/second	2118.9	Cu. feet/minute	Cu. feet/minute	0.00047195	Cu. meters/second
Grams/second	7.9366	Pounds/hour	Pounds/hour	0.126	Grams/second
Meters/second	2.237	Miles/hour	Miles/hour	0.44704	Meters/second
Volume					
Liters	0.26418	Gallons	Gallons	3.78533	Liters
Liters	0.035316	Cubic feet	Cubic feet	28.316	Liters
Liters	0.001308	Cubic yards	Cubic yards	764.54	Liters
Cubic meters	264.17	Gallons	Gallons	0.0037854	Cubic meters
Cubic meters	35.314	Cubic feet	Cubic feet	0.028317	Cubic meters
Cubic meters	1.3079	Cubic yards	Cubic yards	0.76456	Cubic meters
Cubic meters	0.0008107	Acre-feet	Acre-feet	1233.49	Cubic meters
Weight/Mass					
Grams	0.035274	Ounces	Ounces	28.35	Grams
Kilograms	2.2046	Pounds	Pounds	0.45359	Kilograms
Kilograms	0.0011023	Tons (short)	Tons (short)	907.18	Kilograms
Metric tons	1.1023	Tons (short)	Tons (short)	0.90718	Metric tons
ENGLISH TO ENGLISH					
Acre-feet	325,850.7	Gallons	Gallons	0.000003046	Acre-feet
Acres	43,560	Square feet	Square feet	0.000022957	Acres
Square miles	640	Acres	Acres	0.0015625	Square miles

a. This conversion is only valid for concentrations of contaminants (or other materials) in water.

METRIC PREFIXES

Prefix	Symbol	Multiplication factor	
exa-	E	1,000,000,000,000,000,000	= 10^{18}
peta-	P	1,000,000,000,000,000	= 10^{15}
tera-	T	1,000,000,000,000	= 10^{12}
giga-	G	1,000,000,000	= 10^{9}
mega-	M	1,000,000	= 10^{6}
kilo-	k	1,000	= 10^{3}
deca-	D	10	= 10^{1}
deci-	d	0.1	= 10^{-1}
centi-	c	0.01	= 10^{-2}
milli-	m	0.001	= 10^{-3}
micro-	µ	0.000 001	= 10^{-6}
nano-	n	0.000 000 001	= 10^{-9}
pico-	p	0.000 000 000 001	= 10^{-12}